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- Virmani, S.S., and R.C. Dolores Dalmacio. Cytogenic relationship between two cytoplasmic male-sterile lines. 12 (1) (Feb 87), 14.

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- Marimuthu, R., V. Sivasubramanian, and S. Chelliah. A promising rice culture for shallow waterlogged conditions. 12 (2) (Apr 87), 22.
- Rahman, M.L. Source of ufra-resistant deepwater rice. 12 (1) (Feb 87), 8.
- Rathaiah, Y., and G.R. Das. Ufra threatens deepwater rice in Majuli, Assam. 12 (4) (Aug 87), 29.
- Ray, S., S.N. Das, and H.D. Catling. Plant parasitic nematodes associated with deepwater rice in Orissa, India. 12 (5) (Oct 87), 20-21.
- Singh, B.N., S.P. Sahu, and R. Thakur. Sudha, a new deepwater rice variety in Bihar, India. 12 (6) (Dec 87), 16-17.
- Singh, P.K., R. Thakur, and N.B. Singh. Contribution of aquatic tillers to grain yield in deepwater rice. 12 (6) (Dec 87), 10.

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- Bhol, B.B., and K.N. Singh. Weed control in irrigated wet and dry seeded rice in medium-textured soils of Northwestern India. 12 (4) (Aug 87), 46.
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- Kundu, C., A. Ghosh, and R. Ghosh. Seed dormancy in some short-duration rices. 12 (2) (Apr 87), 12.
- Veeraraja Urs, Y.S., and I.S. Aftab Hussain. Dormancy in some early and medium duration varieties. 12 (1) (Feb 87), 5. [corrected in 12 (3) (Jun 87), back cover]

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- Nayagam, P.G., S. Natarajan, and G.S. Pandian. Agronomic yield characteristics of three elite upland rices in Tamil Nadu. 12 (6) (Dec 87), 7.
- Nayagam, P.G., G. Soundrapandian, and S. Natarajan. Evaluation of drought-resistant upland rice accessions. 12 (4) (Aug 87), 18.
- Roy, S.K.B. Variability in yield and yield components of normal and late-sown rice in West Bengal. 12 (3) (Jun 87), 18-19.
- Sharma, D.K., M.N. Shrivastava, P.S. Shrivastava, and A.S.R.A.S. Sastry. Drought tolerance of some rice hybrids and their parents. 12 (3) (Jun 87), 19-20.

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- Singh, G.P., R.N. Singh, and A. Singh. Status of false smut (FS) of rice in eastern Uttar Pradesh, India. 12 (2) (Apr 87), 28.

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- Niane, A.B. Response of rice to N split application on a saline soil. 12 (1) (Feb 87), 27.
- Patil, B.N., A.M. Krishnappa, Badrinath, K. Kenchaiah, K.B. Rao, and N.A. Janardhana Gowda. Efficiency of urea-based fertilizers in coastal rice. 12 (1) (Feb 87), 27.
- Ramasamy, S., S. Sankaran, V. Velu, V. Athmanathan, and T. Rajagopal. Split application of slow-release urea. 12 (2) (Apr 87), 45.
- Rao, D.L.N., and S.K. Ghai. Slow-release urea fertilizers in sodic soils. 12 (1) (Feb 87), 32-33.
- Roy, B., and J.N. Jha. Effect of phosphorus on lowland rice yield. 12 (2) (Apr 87), 41.
- Shahani, B.H., A.B. Khan, M.B. Ahmad, and M. Ayaz Khan. Response of rice to input factors in farmers' fields. 12 (5) (Oct 87), 35.
- Singh, M.V. Responses of rice to N, P, and Zn in semireclaimed alkali soil. 12 (3) (Jun 87), 49.
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- Balasubramanian, P., A.S. Dawood, and S. Sankaran. Effect of basally applied coated urea on grain yield. 12 (3) (Jun 87), 48-49.
- Bisht, P.S., P.C. Pandey, and P. Lal. Efficiency of urea supergranule (USG) under water stress at different growth stages. 12 (6) (Dec 87), 33.
- Biswas, C.R., B. Bhattacharya, B.K. Bandyopadhyay, and A.K. Bandyopadhyay. N, P, and K uptake of rice on coastal saline soils. 12 (2) (Apr 87), 42.
- Chakraborty, A.K., and B. Bhattacharya. Effect of slow-release nitrogen fertilizers on rice yield. 12 (4) (Aug 87), 58-59.
- Chandrasekharan, V., G.S. Thangamuthu, and P. Balasubramaniyan. Effect of azolla and inorganic N combined. 12 (4) (Aug 87), 54-55.
- Chen, Rongye, Zhang Jiancai, Guo Wangmo, and Chen Wei. N fertilizer (urea) topdressed on unsaturated soil and deep-placed using reflooding water. 12(5) (Oct 87), 35-36.
- Gowda, N.A.J., Badrinath, P.S. Herle, and K.B. Rao. Impact of level and source of slow-release N fertilizers on rice yield and yield components. 12 (5) (Oct 87), 37.
- Hati, N. Effect of combining chemical N and Sesbania aculeata in upland rice. 12 (2) (Apr 87), 44-45.
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- Jena, B., and C. Misra. Effects of several urea-based N sources. 12 (3) (Jun 87), 49-50.

- Katoch, K.K., B.R. Sharma, and V.K. Bhatnagar. Response of rainfed rice to nitrogen level and postplanting soil management practices. 12 (1) (Feb 87), 32.
- Kehinde, J.K., and S.O. Fagade. Response of upland rices to nitrogen. 12 (4) (Aug 87), 60.
- Mahapatra, B.S., K.C. Sharma, and G.L. Sharma. Integrated nitrogen management for lowland rice. 12 (1) (Feb 87), 32.
- Maskina, M.S., Bijay-Singh, and Yadvinder-Singh. Effect of transplanting date and N application on yield. 12 (4) (Aug 87), 52.
- Maskina, M.S., Yadvinder-Singh, and Bijay-Singh. Response of new rice varieties to N. 12 (4) (Aug 87), 8-9.
- Maurya, D.M., and M.P. Yadav. Performance of overage seedlings at different N levels. 12 (4) (Aug 87), 9.
- Niane, A.B. Response of rice to N split application on a saline soil. 12 (1) (Feb 87), 27.
- Patel, M.R., and N.D. Desai. Sources and methods of N application for irrigated wetland rice. 12 (2) (Apr 87), 43.
- Patil, B.N., A.M. Krishnappa, Badrinath, K. Kenchaiah, K.B. Rao, and N.A. Janardhana Gowda. Efficiency of urea-based fertilizers in coastal rice. 12 (1) (Feb 87), 27.
- Patro, G.K., K. Mohanty, and B.K. Jena. Efficiency of azolla as an organic N source for rice. 12 (6) (Dec 87), 34-35.
- Prakash, K.S., and B.G. Prakash. Effect of nitrogen source and insect control on growth of a ration crop. 12 (3) (Jun 87), 41-42.
- Prasad, J., and S.B. Singh. Effect of N and Azospirillum on rice N uptake. 12 (2) (Apr 87), 42.
- Ramasamy, S., S. Sankaran, V. Velu, V. Athmanathan, and T. Rajagopal. Split application of slow-release urea. 12 (2) (Apr 87), 45.
- Rao, D.L.N., and S.K. Ghai. Slow-release urea fertilizers in sodic soils. 12 (1) (Feb 87), 32-33.
- Saroja, R., R. Jagannathan, and N. Raju. Effect of N nutrition and rice variety on leaffolder (LF), yellow stem borer (YSB), and grain yield. 12 (5) (Oct 87), 11-12.
- Sharma, G.L., and B.S. Mahapatra. Vertical distribution of soil solution NH₁₄⁺ N and grain yield of lowland rice with integrated N management. 12(2)(Apr 87), 39.
- Shrivastava, Jr., S.K., R. Singh, B.R. Chandrawanshi, and H.P. Agrawal. Nitrogen management for increasing N efficiency in transplanted rice. 12 (4) (Aug 87), 51.
- Singh, B., Y. Singh, M.S. Maskina, and O.P. Meelu. Poultry manure as a N source for wetland rice. 12 (6) (Dec 87), 37-38.
- Singh, H., and B. Mishra. Nitrogen sources for flooded rice. 12 (4) (Aug 87), 51-52.
- Singh, K.N., and D.K. Sharma. Effect of nitrogen on rice in an alkali soil. 12 (4) (Aug 87), 61.
- Singh, K.N., and D.K. Sharma. Response to nitrogen of rice in sodic soil. 12 (3) (Jun 87), 45.
- Singh, Y., B. Singh, M.S. Maskina, and C.S. Khind. Applying nitrogen with sesbania. 12 (3) (Jun 87), 49.

- Singh, Y., B. Singh, M.S. Maskina, and O.P. Meelu. Availability to wetland rice of nitrogen from cattle manure. 12 (6) (Dec 87), 35-36.
- Subbaiah, S.V., and S.K. Sharma. Effect of urea supergranule (USG) on grain yield of varieties of different durations. 12 (3) (Jun 87), 50.
- Subramani, S., and S. Kannaiyan. Effect of urea on decomposition of azolla. 12 (4) (Aug 87), 57.
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- Yadvinder-Singh, Bijay-Singh, and M.S. Maskina. Efficiency of nitrogen fertilizers and a nitrification inhibitor. 12 (4) (Aug 87), 55-56.
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- Badrinath, A.M. Krishnappa, P.S. Herle, B.N. Patil, N.A.J. Gowda, and K.B. Rao. Mussoorie rock phosphate (MRP) effects on yield. 12 (3) (Jun 87), 50-51.
- Biswas, C.R., B. Bhattacharya, B.K. Bandyopadhyay, and A.K. Bandyopadhyay. N, P, and K uptake of rice on coastal saline soils. 12 (2) (Apr 87), 42.
- Karuppiah, V.Kr. K., and G.S. Thangamuthu. Efficiency of phosphorus form combined with organic manure in rice rice cropping. 12 (3) (Jun 87), 53.
- Rajagopalan, S., and J. Krishnarajan. Effect on rice yield of nursery treatments at various levels of main field phosphorus. 12 (5) (Oct 87), 33.
- Roy, B., and J.N. Jha. Effect of phosphorus on lowland rice yield. 12 (2) (Apr 87), 41.
- Sahu, S.K. Phosphate sources for lowland rice. 12 (1) (Feb 87), 34-35.
- Singh, B.K., P.S. Tan, L.V. Thanh, and N.V. Luat. Phosphorus application in acid-sulfate soil. 12 (3) (Jun 87), 51-52.
- Singh, T.N., G. Singh, H.P. Singh, and G.P. Verma. P and K requirements of upland rice in eastern Uttar Pradesh. 12 (2) (Apr 87), 46-47.

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- Biswas, C.R., B. Bhattacharya, B.K. Bandyopadhyay, and A.K. Bandyopadhyay. N, P, and K uptake of rice on coastal saline soils. 12 (2) (Apr 87), 42.
- Fan, Mingxieng, Ge Dangzhi, and Jiang Longyin. Potassium nutrition in hybrid rice. 12 (4) (Aug 87), 21-22.
- Roy, B., and J.N. Jha. Effect of treating single superphosphate with cowdung. 12 (2) (Apr 87), 43.
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- Singh, T.N., G. Singh, H.P. Singh, and G.P. Verma. P and K requirements of upland rice in eastern Uttar Pradesh. 12 (2) (Apr 87), 46-47.
- Zia, M.S., M. Aslam, and M.T. Rashid. Potassium nutrition of rice. 12 (5) (Oct 87), 36.

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- Singh, T.S. Detection of seedborne rice fungi by blotter method. 12 (4) (Aug 87), 27-28.
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- Dakuo, D., and S. Nacro. Chemical control of rice gall midge (GM) Orseolia oryzivora. 12 (3) (Jun 87), 38.
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- Kulkarni, N., G.V.S.P. Rao, and T. Narsaiah. New sources of resistance to gall midge (GM) and yellow stem borer (YSB). 12 (3) (Jun 87), 17.
- Kulkarni, N., P.P. Reddy, D.V. Rao, and G.B. Rao. Pothana a gall midge (GM) resistant variety for endemic areas of Andhra Pradesh. 12 (3) (Jun 87), 16.
- Rao, P.S.P. Tolerance of some rice varieties for gall midge (GM) Orseolia oryzae Wood-Mason. 12 (4) (Aug 87), 16-17.
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- Manian, K., M. Jayaprakasam, N. Natarajaratnam, and S.R. Sree Rangasamy. Effect of hydrocortisone on germination of rice. 12 (5) (Oct 87), 8.
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- Navasero, E.P., and M.D. Winslow. Physicochemical properties of discolored rice grains. 12 (3) (Jun 87), 13-14.
- Singh, N.I. Pestalotia oryzae a new rice fungus in India. 12 (4) (Aug 87), 32-33.
- Zeigler, R.S., M. Rubiano, and E. Alvarez. Heat and chemical therapy to eradicate *Pseudomonas fuscovaginae* from rice seed. 12 (5) (Oct 87), 18-19.

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- Cuevas-Perez, F., and A. Hosein. Effect of simulated rain on head rice yields of varieties under delayed harvest. 12 (6) (Dec 87), 11.
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- Cuevas-Perez, F., and L.E. Berrio. Influence of planting date on milling performance of rice varieties under delayed harvesting. 12 (5) (Oct 87), 10.
- Desai, N.D., S. Raman, M.U. Kukadia, and M.R. Patel. High-yielding aromatic rice variety GR101.12(4) (Aug 87), 10-11.
- Kanyeka, Z.L., P.J. Hyong, and J.M.N. Kibanda. DAK83 a promising new aromatic selection for small holders in Tanzania. 12 (5) (Oct 87), 7.
- Kihupi, A.N. Grain quality characteristics of some rice varieties. 12 (3) (Jun 87), 13.
- Navasero, E.P., and M.D. Winslow. Physicochemical properties of discolored rice grains. 12 (3) (Jun 87), 13-14.
- Nguyen, Xuan Hien, and Nguyen Thu Ha. Two promising scented rice varieties for the Mekong Delta. 12 (4) (Aug 87), 9-10.
- Rao, S.P. Grain grades in relation to seedling growth and productivity. 12 (1) (Feb 87), 6.
- Rao, S.P. High density grain index among primary and secondary tillers of short- and long-duration rices. 12 (4) (Aug 87), 12.
- Rao, S.P. Relationship of agroclimatic parameters to high density grain production. 12 (2) (Apr 87), 13-14.
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- Thayumanavan, B. Physicochemical properties as a basis for identifying preferred cooking quality. 12 (4) (Aug 87), 11.
- Uppal, S.K., and G.S. Sidhu. Grain quality of new varieties PR108 and PR109 in Punjab, India. 12(2)(Apr 87), 13.
- Venkateswarlu, B., B.S. Vergara, and R.M. Visperas. Influence of vegetative growth duration on grain grade. 12 (1) (Feb 87), 4-5.

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- Vennila, S., and P.C. Sundara Babu. Species composition of Nephotettix in Tamil Nadu. 12 (6) (Dec 87), 29.

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- Macatula, R.F., R.P. Basilio, and O. Mochida. Seed treatment with calcium peroxide to control green leafhopper (GLH) and brown planthopper (BPH). 12 (2) (Apr 87), 33.
- Mas'ud, S., and Moeh. Sudjak S. Effect of buprofezin in controlling green leafhopper (GLH) and tungro (RTV) incidence. 12 (3) (Jun 87), 36-37.
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- Saxena, R.C., and H.D. Justo, Jr. Trap crop for green leafhopper (GLH) and tungro (RTV) management. 12 (3) (Jun 87), 31-32.
- Valencia, S.L., and O. Mochida. Effect of synthetic pyrethroid insecticides on green leafhopper (GLH) and tungro (RTV). 12 (3) (Jun 87), 37-38.
- Valle, R.R. Daylength effect on development of 4 green leafhopper Nephotettix spp. 12 (1) (Feb 87), 20-21.
- Velusamy, M., and M. Subramanian. Control of rice pests with phosphamidon 85% WP. 12 (3) (Jun 87), 29.

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- Flores, Z.M., R.C. Cabunagan, G.B. Jonson, and H. Hibino. Reaction to rice tungro-associated viruses of rice varieties with different genes for green leaf (GLH) resistance. 12 (5) (Oct 87), 11.
- Sunio, L.M., and E.H. Tryon. Reaction of varieties and selections to green leafhopper (GLH) and tungro (RTV) in the greenhouse. 12 (4) (Aug 87), 14.
- Tiongco, E.R., Z.M. Flores, and H. Hibino. Reaction of selected varieties to tungro (RTV) and green leafhopper (GLH). 12 (4) (Aug 87), 15-16.
- Velusamy, R., G.A. Palanisamy, and K. Natarajamoorthy. Hill rice resistance to leafhoppers and planthoppers in Tamil Nadu. 12 (2) (Apr 87), 19.
- Velusamy, R., R. Rajendran, P.C. Sundara Babu, and G.S. Khush. Resistance of IR varieties to leafhoppers and planthoppers. 12 (1) (Feb 87), 10.

Vidhyasekaran, P., K. Saivaraj, H.D. Lewin, and S. Chelliah. Reaction of IR and ADT varieties to green leafhopper (GLH) and tungro (RTV). 12 (5) (Oct 87), 12.

GREEN MANURE

- Gopalaswamy, G., and P. Vidhyasekaran. Effects of green leaf manure on soil fertility and rice yield. 12 (2) (Apr 87), 41.
- Halepyati, A.S., M.N. Sheelavantar, and L.A. Dixit. Breaking dormancy in Sesbania rostrata. 12 (5) (Oct 87), 36.
- Hati, N. Effect of combining chemical N and Sesbania aculeata in upland rice. 12 (2) (Apr 87), 44-45.
- Karuppiah, V. Kr. K., and G.S. Thangamuthu. Efficiency of phosphorus form combined with organic manure in rice rice cropping. 12 (3) (Jun 87), 53.
- Khind, C.S., A. Jugsujinda, C.W. Lindau, and W.H. Patrick, Jr. Effect of sesbania straw in a flooded soil on soil pH, redox potential, and water-soluble nutrients. 12 (3) (Jun 87), 42-43.
- Mahapatra, B.S., K.C. Sharma, and G.L. Sharma. Integrated nitrogen management for lowland rice. 12 (1) (Feb 87), 32.
- Prasad, R., and S.P. Palaniappan. Pulse crop residue as N source in rice-based cropping system. 12 (1) (Feb 87), 31.
- Rabindra, B., R.S. Setty, B.S. Naidu, S.N. Swamygowda, and B.B. Channappagoudar. Effect of green manure on yield. 12 (1) (Feb 87), 28.
- Rarivoson, C., M. Schramm, Ch. Samson, and Fetiarson. Scarifying seeds of green manure legumes. 12 (3) (Jun 87), 47.
- Saravanan, A., V. Velu, and K.M. Ramanathan. Ammonia volatilization loss in rice soils of Cauvery Delta. 12 (4) (Aug 87), 59-60.
- Sharma, G.L., and B.S. Mahapatra. Vertical distribution of soil solution NH₄⁺—N and grain yield of lowland rice with integrated N management. 12 (2) (Apr 87), 39.
- Singh, G.R., and T.A. Singh. Influence of organic amendments and oils on ammonia volatilization in flooded rice. 12 (1) (Feb 87), 33-34.
- Singh, Y., B. Singh, M.S. Maskina, and C.S. Khind. Applying nitrogen with sesbania. 12 (3) (Jun 87), 49.

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- Ghosh, B.K., and S.K. Sahu. Response of rainfed upland rice to chlormequat chloride. 12 (6) (Dec 87), 15.
- Pan, Rui-chi, and Guang-jian Liang. Retardation of heading in male sterile and restorer lines using paclobutrazol. 12 (6) (Dec 87), 18.

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Bisht, P.S., P.C. Pandey, and P. Lal. Efficiency of urea supergranule (USG) under water stress at different growth stages. 12 (6) (Dec 87), 33.

- Pandya, H.V., A.H. Shah, and M.S. Purohit. Effect of insecticide treatment at different rice crop stages on carryover of yellow stem borer (YSB). 12 (6) (Dec 87), 27.
- Venkateswarlu, B., B.S. Vergara, and R.M. Visperas. Influence of vegetative growth duration on grain grade. 12 (1) (Feb 87), 4-5.

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Dubey, S.K., R.C. Mondal, and A. Swarup. Effect of gypsum and pyrite with different moisture regimes on sodic soil improvement and rice yield. 12 (6) (Dec 87), 35.

Н

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Bisht, P.S., P.C. Pandey, and P. Lal. Agronomic and economic evaluation of herbicides in transplanted rice. 12 (2) (Apr 87), 36-37.

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- Faye, A., M. Gningue, and O. Mane. Inheritance of tillering ability in three crosses of upland varieties. 12 (3) (Jun 87), 10-11.
- Shen, Fu-Chen, Liu Chuan-Xiu, and Pan Jian-Hui. Heritability of rolled leaf character. 12 (3) (Jun 87), 12.

HILL RICES

Velusamy, R., G.A. Palanisamy, and K. Natarajamoorthy. Hill rice resistance to leafhoppers and planthoppers in Tamil Nadu. 12 (2) (Apr 87), 19.

HISPA

- Datta, S.K., D. Konar, S.K. De, and P.K. Banerjee. Growth duration and hispa susceptibility. 12(2)(Apr 87), 17-18.
- Haque, Md. E., S.L. Durbey, and B.N. Singh. Varietal resistance to rice hispa. 12 (6) (Dec 87), 13.
- Krishnaiah, P.V., P. Seshagiri Rao, P. Sanjeeva Rao, N.H.P. Rao, and V. Narasimham. Insecticides to control rice hispa. 12 (4) (Aug 87), 43.

HYBRID RICE

- Fan, Mingxieng, Ge Dangzhi, and Jiang Longyin. Potassium nutrition in hybrid rice. 12 (4) (Aug 87), 21-22.
- Glaszmann, J.C., O. Edralin, and S.S. Virmani. Isozyme markers to monitor seed purity in indica hybrid rice. 12 (5) (Oct 87), 17.
- James, T., and E.P. Guimaraes. Recurrent selection in rice. 12 (1) (Feb 87), 13-14.
- Lei, Hui-zhi, Liu Gui-qiu, Wu Mei-wu, and Jiang Jian-yun. Biotype populations of *Nilaparvata lugens* in Hunan, China. 12 (5) (Oct 87), 22-23.
- Mao, Chang-Xiang. Early-maturing hybrid rice combinations. 12 (3) (Jun 87), 22.

- Nguyen, Van Luat, and Pham Cong Voc. Evaluation and use of male sterile systems in Mekong Delta, Vietnam. 12 (1) (Feb 87), 18-19.
- Pham, Cong Voc, and Nguyen Van Luat. Yield evaluation of F₁ hybrids in the Mekong Delta, Vietnam. 12 (6) (Dec 87), 20.
- Pan, Rui-chi, and Guang-jian Liang. Retardation of heading in male sterile and restorer lines using paclobutrazol. 12 (6) (Dec 87), 18.
- Rangaswamy, M., K. Natarajamoorthy, G.S. Palanisamy, and S.R. Sree Rangaswamy. Isolation of restorers and maintainers for two Chinese male-sterile lines having wild abortive (WA) cytoplasm. 12 (1) (Feb 87), 13.
- Rangaswamy, M., S.R.S. Rangasamy, K. Natarajamoorthy, and V. Sivasubramanian. Morphological characters, seed setting, and dry matter production of A and B lines. 12 (3) (Jun 87), 22-23.
- Sahai, V.N., S. Saran, and R.C. Chaudhary. Hybrid rice research in Bihar, India. 12 (2) (Apr 87), 23.
- Senadhira, D., and S.S. Virmani. Survival of some F₁ rice hybrids and their parents in saline soil. 12 (1) (Feb 87), 14-15.
- Sharma, D.K., M.N. Shrivastava, P.S. Shrivastava, and A.S.R.A.S. Sastry. Drought tolerance of some rice hybrids and their parents. 12 (3) (Jun 87), 19-20.
- Sharma, H.L., H. Singh, and D.P. Joshi. Minimum isolation distance for hybrid rice production. 12 (2) (Apr 87), 24.
- Singh, M.R.K., and P.K. Sinha. Identification and classification of fertility restorers and maintainers for cytoplasmic male sterile line V20A. 12 (5) (Oct 87), 16-17.
- Tan, K., and Jinpei Li. Field screening of hybrids for the second crop in acid sulfate soils of South China. 12 (3) (Jun 87), 21-22.
- Virmani, S.S., and R.C. Dolores Dalmacio. Cytogenic relationship between two cytoplasmic male-sterile lines. 12 (1) (Feb 87), 14.
- Vivekanandan, P., T.B. Ranganathan, and M. Kadamba-vanasundaram. Susceptibility of rice hybrids to blast (Bl). 12 (1) (Feb 87), 6-7.
- Watanesk, O., and S. Sa-nguansaj. Test cross for restorer genes using three male sterile lines. 12 (4) (Aug 87), 22.
- Xie, Fangming. Performance of three new hybrid rices. 12 (3) (Jun 87), 23.
- Yasin HG, M. Weed control in hybrid rice. 12 (4) (Aug 87), 48.

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Prakash, K.S., and B.G. Prakash. Effect of nitrogen source and insect control on growth of a ration crop. 12 (3) (Jun 87), 41-42.

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- Gopalan, M., N.C. Radja, and G. Balasubramanian. Effect of insecticides on eggs of *Brevennia rehi* (Lindinger). 12 (4) (Aug 87), 35.
- Macatula, R.F., and O. Mochida. Knockdown of green leafhopper (GLH) by six insecticides. 12 (3) (Jun 87), 37.
- Macatula, R.F., and O. Mochida. Minimum levels of three commonly used insecticides to control five insect pests of rice in the Philippines. 12 (4) (Aug 87), 39.
- Pandya, H.V., A.H. Shah, and M.S. Purohit. Effect of some insecticide formulations against newly emerged yellow stem borer (YSB) larvae. 12 (6) (Dec 87), 27-28.
- Pandya, H.V., A.H. Shah, and M.S. Purohit. Ovicidal activity of insecticides against yellow stem borer (YSB). 12 (6) (Dec 87), 28.
- Valencia, S.L., and O. Mochida. Effect of synthetic pyrethroid insecticides on green leafhopper (GLH) and tungro (RTV). 12 (3) (Jun 87), 37-38.

INSECTICIDE TESTING — SPRAYS

- Pal, A.K., H.K. Senapati, and N. Panda. Persistence of quinalphos in rice. 12 (4) (Aug 87), 43.
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- Barrion, A.T., and J.A. Litsinger. Heliothis armigera development and damage to rice. 12 (5) (Oct 87), 29.
- Chakravarthy, A.K. Insect pests on main and ratoon rice. 12 (4) (Aug 87), 35-36.

IRON TOXICITY

Tan, K., and Jinpei Li. Field screening of hybrids for the second crop in acid sulfate soils of South China. 12 (3) (Jun 87), 21-22.

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IRRIGATION WATER

Babu, V.R., N.S. Rao, G.V. Subbaiah, and B. Ramayya. Effect of saline irrigation water on yield. 12 (2) (Apr 87), 21-22.

IRRN READERS

- Criteria for IRRN research reports. 12 (5) (Oct 87), inside front cover.
- Guidelines for contributors to IRRN. 12(5) (Oct 87), inside front cover.
- IRRN: categories of research reported. 12 (5) (Oct 87), inside front cover.

K

KERNEL SMUT

Akhtar, M.A., and M. Sarwar. Incidence of rice kernel smut (KSm) in Pakistan. 12 (4) (Aug 87), 15.

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Devadath, S., and A.P. Dath. Effect of additional nitrogen on incidence of the kresek phase of bacterial blight (BB). 12 (2) (Apr 87), 30.

ı

LAND PREPARATION

Purushothaman, S., P. Jayapaul, and R. Kandasamy. Puddling methods for lowland rice. 12 (4) (Aug 87), 49.

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Qadar, A. Sodicity-induced morphological disorder in rice laminae. 12 (5) (Oct 87), 34.

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- Aguda, R.M., and M.C. Rombach. Bioassay of Beauveria bassiana and Nomuraea rileyi (Deuteromycotina: Hyphomycetes) against the rice leaffolder (LF). 12 (3) (Jun 87), 36.
- Chatterjee, P.B. Rice leaffolder (LF) infestations in West Bengal. 12 (4) (Aug 87), 44-45.
- Ghose, S., H.R. Prabhudesai, A. Dias, S.P. Sundarajan, and P.K. Mirajgaonkar. Rice insects and diseases in Goa, India. 12 (2) (Apr 87), 35.
- Jaganathan, S., and N. Chandramohan. Rice leaffolder (LF) species in North Arcot District, Tamil Nadu. 12 (4) (Aug 87), 42-43.
- Macatula, R.F., and O. Mochida. Minimum levels of three commonly used insecticides to control five insect pests of rice in the Philippines. 12 (4) (Aug 87), 39.
- Nadarajan, L., and N.R. Nair. A new rice leaffolder (LF) in Kerala. 12 (5) (Oct 87), 23.
- Pandya, H.V., A.H. Shah, and M.S. Purohit. Yield loss caused by leaffolder (LF) damage alone and combined with yellow stem borer (YSB) damage. 12 (5) (Oct 87), 28.
- Patel, R.K., M.P. Janoria, and A.K. Bhowmik. Leaffolder (LF) population on rice under drought. 12 (3) (Jun 87), 30.
- Patnaik, H.P., N.C. Patnaik, and K.M. Samal. Resistance to rice whorl maggot (RWM) and leaffolder (LF) in the north-central plateau of Orissa, India. 12 (2) (Apr 87), 20.
- Rajasekaran, B., R. Rajendran, R. Velusamy, and P.C. Sundara Babu. Effect of vegetable oil on rice leaffolder (LF) feeding bahavior. 12 (2) (Apr 87), 34.

- Rajendran, R., and M. Gopalan. Composition of the rice leaffolder complex in Coimbatore, Tamil Nadu, India. 12 (6) (Dec 87), 26.
- Rajendran, R., M. Gopalan, and R. Velusamy. Rice varieties resistant to brown planthopper (BPH), white-backed planthopper (WBPH), and leaffolder (LF). 12 (5) (Oct 87), 12-13.
- Rajendran, R., and R. Velusamy. Screening of rice accessions against leaffolder (LF) Cnaphalocrocis medinalis. 12 (4) (Aug 87), 17-18.
- Saroja, R., R. Jagannathan, and N. Raju. Effect of N nutrition and rice variety on leaffolder (LF), yellow stem borer (YSB), and grain yield. 12 (5) (Oct 87), 11-12
- Saroja, R., M. Suriachandraselvan, J. Venkatakrishnan, K. Nilakantapillai, and T.B. Ranganathan. Field evaluation of rice culture resistance to leaffolder (LF) and sheath rot (ShR). 12 (2) (Apr 87), 18.
- Suharto, H., and I.P. Noch. Effect of transplanting date on leaffolder (LF) Cnaphalocrocis medinalis and rice bug (RB) Leptocorisa oratorius infestation at Kuningan, West Java. 12 (5) (Oct 87), 27.

LEAFHOPPERS

- Alviola, A.L., III, and J.A. Litsinger. Leafhopper and planthopper populations and rice tungro virus (RTV) incidence at the tail end of an irrigation system. 12 (1) (Feb 87), 22.
- Barrion, A.T., and J.A. Litsinger. Strepsipteran parasites of rice leafhoppers and planthoppers in the Philippines. 12 (4) (Aug 87), 37-38.
- Khan, Z.R. Artificial diet for rearing rice leaffolder. 12 (6) (Dec 87), 30-31.

LEAF TIP DRYING

Natarajamoorthy, K., G.A. Palanisamy, and S. Palanisamy. Extent of wind-induced tip drying in popular rice varieties in Coimbatore. 12 (1) (Feb 87), 11-12.

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Roy, B., and J.N. Jha. Effect of time of lodging on rice productivity. 12 (2) (Apr 87), 11-12.

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- Barrion, A.T., and J.A. Litsinger. Stem borers (SB) in dryland and wetland rice. 12 (4) (Aug 87), 17.
- Ghosh, B.K., and S.K. Sahu. Response of lowland rice to Zn. 12 (5) (Oct 87), 32-33.
- Jena, B.K., P.K. Mahapatra, and G.K. Patro. Effect of slow-release nitrogen fertilizers on lowland rice. 12 (4) (Aug 87), 52-53.
- Mahapatra, B.S., K.C. Sharma, and G.L. Sharma. Integrated nitrogen management for lowland rice. 12 (1) (Feb 87), 32.
- Patel, M.R., and N.D. Desai. Sources and methods of N application for irrigated wetland rice. 12 (2) (Apr 87), 43.

- Purushothaman, S., P. Jayapaul, and R. Kandasamy. Puddling methods for lowland rice, 12 (4) (Aug 87), 49.
- Roy, B., and J.N. Jha. Effect of phosphorus on lowland rice yield. 12 (2) (Apr 87), 41.
- Santhi, S.R., and S.P. Palaniappan. Effect of neem leaf application on nitrogen efficiency in lowland rice. 12(1) (Feb 87), 29.
- Singh, B., Y. Singh, M.S. Maskina, and O.P. Meelu. Poultry manure as a N source for wetland rice. 12 (6) (Dec 87), 37-38.
- Singh, Y., B. Singh, M.S. Maskina, and O.P. Meehu. Availability to wetland rice of nitrogen from cattle manure. 12 (6) (Dec 87), 35-36.

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Jones, M.P. Main and ratoon rice crop performance in mangrove swamps. 12 (2) (Apr 87), 11.

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- Karuppiah, V. Kr. K., and G.S. Thangamuthu. Efficiency of phosphorus form combined with organic manure in rice rice cropping. 12 (3) (Jun 87), 53.
- Maskina, M.S., Yadvinder-Singh, and Bijay-Singh. Wheat straw management for rice on a coarse-textured soil. 12 (2) (Apr 87), 40.
- Mathur, S.K., O.P. Mathur, and N.R. Talati. Effect of soil amendments on rice and wheat yields in salt-affected soils. 12 (4) (Aug 87), 63.
- Rajagopalan, S., and M. Subramanian. Integrated nutrient management for short-duration rice. 12 (5) (Oct 87), 33-34.
- Roy, B., and J.N. Jha. Effect of treating single superphosphate with cowdung. 12 (2) (Apr 87), 43.
- Singh, B., Y. Singh, M.S. Maskina, and O.P. Meelu. Poultry manure as a N source for wetland rice. 12 (6) (Dec 87), 37-38.
- Singh, Y., B. Singh, M.S. Maskina, and O.P. Meelu. Availability to wetland rice of nitrogen from cattle manure. 12 (6) (Dec 87), 35-36.

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- Gopalan, M., N.C. Radja, and G. Balasubramanian. Biochemical changes in rice plants infested with mealybug. 12 (4) (Aug 87), 45.
- Gopalan, M., N.C. Radja, and G. Balasubramanian. Effect of insecticides on eggs of *Brevennia rehi* (Lindinger). 12 (4) (Aug 87), 35.

Gopalan, M., N.C. Radja, and G. Balasubramanian. Screening rice varieties for resistance to mealybug. 12 (4) (Aug 87), 18.

MICRONUTRIENTS

Panigrahi, U.C., and S.K. Sahu. Response of transplanted rice to micronutrients and the residual effect on wheat. 12 (5) (Oct 87), 38.

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- Dakshinamurthy, A., P. Karuppuchamy, and M. Mohanasundaram. Occurrence of a predatory mite Pyemotes ventricosus on Sitotroga cerealella Oliv. 12 (4) (Aug 87), 42.
- Karuppuchamy, P., R. Velusamy, R. Rajendran, and P.C. Sundara Babu. Rice mite Oligonychus oryzae (Hirst) incidence on IR elite lines. 12 (2) (Apr 87), 20.
- Velusamy, M., D. Alice, and M. Subramanian. Reaction of rice varieties to the mite Oligonychus oryzae. 12(3) (Jun 87), 15.

MULTIPLE PEST RESISTANCE

- Saroja, R., M. Suriachandraselvan, N. Raju, and T.B. Ranganathan. Multiple resistance of BG367-3 to major insect pests and diseases. 12 (1) (Feb 87), 9-10.
- Velusamy, R., R. Rajendran, P.C. Sundara Babu, and G.S. Khush. Resistance of IR varieties to leafhoppers and planthoppers. 12 (1) (Feb 87), 10.

MUTATION

- Kumar, C.R.A., and S.R. Sree Rangasamy. Dominant dwarf mutants in rice induced with fractionated dose of gamma rays. 12 (4) (Aug 87), 5-6.
- Sagar, M.A., and M. Ashraf. Grain quality of some promising mutants. 12 (3) (Jun 87), 12-13.
- Sajjad, M.S., and M.A. Awan. Induction of productive semidwarf mutants of Basmati rice. 12 (6) (Dec 87), 20-21.

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- Aiyanathan, K.E.A., and P. Narayanasamy. Effect of neem oil on tungro (RTV) infection in susceptible and resistant varieties. 12 (6) (Dec 87), 23-24.
- Kareem, A.A., R.C. Saxena, and H.D. Justo, Jr. Cost comparison of neem oil and an insecticide against rice tungro virus (RTV). 12 (4) (Aug 87), 28-29.
- Kushari, D.P. Effect of leachates of neem and sirish on the biomass production and pests of Azolla pinnata. 12 (6) (Dec 87), 34.
- Rajasekaran, B., R. Rajendran, R. Velusamy, and P.C. Sundara Babu. Effect of vegetable oil on rice leaffolder (LF) feeding bahavior. 12 (2) (Apr 87), 34.

- Ramasamy, S., S. Sankaran, V. Velu, V. Athmanathan, and T. Rajagopal. Split application of slow-release urea. 12 (2) (Apr 87), 45.
- Santhi, S.R., and S.P. Palaniappan. Effect of neem leaf application on nitrogen efficiency in lowland rice. 12 (1) (Feb 87), 29.
- Saxena, R.C., and A.A. Barrion. Cytogenetic effects of neem seed "bitters" (NSB) on green leafhopper (GLH) males. 12 (5) (Oct 87), 24-25.
- Saxena, R.C., and A.A. Barrion. Cytogenetic effects of neem seed kernel extract (NSKE) on brown plant-hopper (BPH) Nilaparvata lugens spermatocytes. 12 (5) (Oct 87), 25-26.
- Velusamy, R., R. Rajendran, and P.C. Sundara Babu. Effect of three neem products on brown planthopper (BPH) oviposition. 12 (2) (Apr 87), 36.

NEMATODES

- Arayarungsarit, L. Yield ability of rice varieties in fields infested with root-knot nematode. 12 (5) (Oct 87), 14.
- Fademi, O.A. Resistance of some rice varieties to the root-knot nematode (RKN) Meloidogyne incognita. 12 (1) (Feb 87), 11.
- Jayanthi, M., G. Shankar, and P. Baskaran. A parasitic nematode in white striated planthopper (WSPH) of rice. 12 (5) (Oct 87), 23.
- Jonathan, E.I., and B. Velayutham. Yield loss to rice root nematode Hirschmanniella oryzae. 12 (3) (Jun 87), 39.
- Mondal, A.H., and S.A. Miah. Ufra problem in low-lying areas of Bangladesh. 12 (4) (Aug 87), 29-30.
- Patnaik, N.C., and N.N. Padhi. Damage by rice root-knot nematode. 12 (4) (Aug 87), 27.
- Rathaiah, Y., and G.R. Das. Ufra threatens deepwater rice in Majuli, Assam. 12 (4) (Aug 87), 29.
- Ray, S., S.N. Das, and H.D. Catling. Plant parasitic nematodes associated with deepwater rice in Orissa, India. 12 (5) (Oct 87), 20-21.
- Routaray, B.N., H. Sahoo, and S.N. Das. Control of rice root nematode with carbofuran. 12 (3) (Jun 87), 39-40.
- Routaray, B.N., and S.N. Das. Effect of seedling root dip and main field treatment on *Hirschmanniella mucro*nata and rice yield. 12 (5) (Oct 87), 31.

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NITROGEN FIXATION

- Balasubramanian, A., and K. Kumar. Performance of Azospirillum biofertilizer in irrigated and rainfed upland rice. 12 (2) (Apr 87), 43-44.
- Gopalaswamy, G., and P. Vidhyasekaran. Effect of method of applying Azospirillum brasilense on rice yield. 12 (4) (Aug 87), 56-57.
- Gopalaswamy, G., and P. Vidhyasekaran. Efficacy of Azospirillum brasilense in increasing rice yield. 12 (1) (Feb 87), 34.
- Joseph, K., N.R. Nair, K.P. Rajaram, D. Alexander, and K. Anilakumar. Nitrogen-fixing potential of blue-green algae (BGA) from Kerala ricefields. 12(6) (Dec 87), 38.

Prasad, J., and S.B. Singh. Effect of N and Azospirillum on rice N uptake. 12 (2) (Apr 87), 42.

Purushothaman, D., G. Gunasekaran, and G. Oblisami. Response of rice to Azospirillum inoculation. 12 (1) (Feb 87), 30.

NITROGEN, PLANT UPTAKE OF

Mahapatra, B.S., K.C. Sharma, and G.L. Sharma. Relationship between organic N fraction and N uptake of rice in submerged soil. 12 (4) (Aug 87), 60-61.

NITROGEN TRANSFORMATION

Saravanan, A., V. Velu, and K.M. Ramanathan. Ammonia volatilization loss in rice soils of Cauvery Delta. 12 (4) (Aug 87), 59-60.

Singh, G.R., and T.A. Singh. Influence of organic amendments and oils on ammonia volatilization in flooded rice. 12 (1) (Feb 87), 33-34.

Yadvinder-Singh, Bijay-Singh, and M.S. Maskina. Efficiency of nitrogen fertilizers and a nitrification inhibitor. 12 (4) (Aug 87), 55-56.

NITROGEN USE EFFICIENCY

Chakraborty, A.K., and B. Bhattacharya. Effect of slow-release nitrogen fertilizers on rice yield. 12 (4) (Aug 87), 58-59.

Santhi, S.R., and S.P. Palaniappan. Effect of neem leaf application on nitrogen efficiency in lowland rice. 12 (1) (Feb 87), 29.

Shrivastava, Jr., S.K., R. Singh, B.R. Chandrawanshi, and H.P. Agrawal. Nitrogen management for increasing N efficiency in transplanted rice. 12 (4) (Aug 87), 51.

Zia, M.S. Effect of plant density and fertilization on rice yield and fertilizer efficiency. 12 (4) (Aug 87), 56.

Zia, M.S., M. Ashraf, and M.A. Sagar. Fertilizer efficiency with dry placement. 12 (1) (Feb 87), 31.

P

PANICLES

Hilton-Lahai, A.H. Some panicle characteristics of rice germplasm from the Northern Province of Sierra Leone. 12 (6) (Dec 87), 8.

PHENOLS

Mahto, B.N., R.N. Singh, C.P. Awashti, and A.B. Abidi. Sugars and phenolic compounds in rice leaves in relation to varietal resistance to bacterial blight (BB) pathogen. 12 (4) (Aug·87), 12-13.

ph of soil

Khind, C.S., A. Jugsujinda, C.W. Lindau, and W.H. Patrick, Jr. Effect of sesbania straw in a flooded soil on soil pH, redox potential, and water-soluble nutrients. 12 (3) (Jun 87), 42-43.

Kundu, D.K., F.N. Ponnamperuma, and H.U. Neue. An improved method of sampling representative solutions from aerobic soils. 11 (6) (Dec 86), 35-36. [corrected in 12 (2) (Apr 87), 50-51]

Mondal, A.H., N.R. Sharma, M.Islam, A. Haque, and S.A. Miah. Effect of low soil phosphorus and pH on bacterial blight (BB). 12 (3) (Jun 87), 30.

PHOSPHORUS DEFICIENCY

Mondal, A.H., N.R. Sharma, M.Islam, A. Haque, and S.A. Miah. Effect of low soil phosphorus and pH on bacterial blight (BB). 12 (3) (Jun 87), 30.

Singh, M.V. Effect of zinc and phosphorus on rice - wheat yields in semireclaimed alkali soil. 12 (2) (Apr 87), 48.

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Shahani, B.H., A.B. Khan, M.B. Ahmad, and M. Ayaz Khan. Response of rice to input factors in farmers' fields. 12 (5) (Oct 87), 35.

Zia, M.S. Effect of plant density and fertilization on rice yield and fertilizer efficiency. 12 (4) (Aug 87), 56.

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Alviola, A.L., III, and J.A. Litsinger. Leafhopper and planthopper populations and rice tungro virus (RTV) incidence at the tail end of an irrigation system. 12 (1) (Feb 87), 22.

Barrion, A. T., and J.A. Litsinger. Strepsipteran parasites of rice leafhoppers and planthoppers in the Philippines. 12 (4) (Aug 87), 37-38.

Jayanthi, M., G. Shankar, and P. Baskaran. A parasitic nematode in white striated planthopper (WSPH) of rice. 12 (5) (Oct 87), 23.

PLANTING METHOD

Açikgöz, N. Effect of sowing time and planting method on rice yield per day. 12 (1) (Feb 87), 34.

Ganjir, B.L., and R.P. Rajput. Effect of cultivation method on the rice crop and the mechanical impediment of Vertisols. 12 (4) (Aug 87), 55.

PLANTING (TRANSPLANTING) DATE

Açikgöz, N. Effect of sowing time and planting method on rice yield per day. 12 (1) (Feb 87), 34.

Cabunagan, R.C., Z.M. Flores, H. Hibino, F. Elazegui, and T.W. Mew. Timing of planting and variety for rice tungro virus disease (RTV) control. 12 (3) (Jun 87), 25-26.

Cuevas-Perez, F., and L.E. Berrio. Influence of planting date on milling performance of rice varieties under delayed harvesting. 12 (5) (Oct 87), 10.

- Maskina, M.S., Bijay-Singh, and Yadvinder-Singh. Effect of transplanting date and N application on yield. 12 (4) (Aug 87), 52.
- Patel, C.L., Z.G. Patel, I.G. Patel, and A.G. Naik. Effect of seeding date and seedling age on dry season yield. 12 (3) (Jun 87), 46-47.
- Sharma, S.K., S.V. Subbaiah, and K.K. Murthy. Rice varieties for delayed planting. 12 (6) (Dec 87), 7.
- Suharto, H., and I.P. Noch. Effect of transplanting date on leaffolder (LF) Cnaphalocrocis medinalis and rice bug (RB) Leptocorisa oratorius infestation at Kuningan, West Java. 12 (5) (Oct 87), 27.
- Ukwungwu, M.N. Influence of age of crop and time of planting on gall midge (GM) incidence. 12 (3) (Jun 87), 32-33.
- Viswambharan, K., K.P. Rajaram, D. Alexander, and N. Rajappan Nair. Factors causing winter yield declines in high-yielding varieties. 12 (1) (Feb 87), 12-13. [corrected in 12 (3) (Jun 87), back cover]

PLANT SPACING

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Roy, B., and J.N. Jha. Effect of time of lodging on rice productivity. 12 (2) (Apr 87), 11-12.

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Addy, S.K., A. Singh, R. Singh, and C.P. Awasthi. Effect of pyrite and fertilizer on rice protein quality. 12 (3) (Jun 87), 44-45.

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Book on nitrogen in flooded soils published. 12 (2) (Apr 87), 51.

Breeding for disease resistance in rice. 12 (5) (Oct 87), 39. Criteria for IRRN research reports. 12 (5) (Oct 87), inside front cover.

Guidelines for contributors to IRRN, 12 (5) (Oct 87), inside front cover.

HY varieties spread. 12 (1) (Feb 87), back cover.

An inside look at the Green Revolution. 12 (1) (Feb 87), back cover.

IRRN: categories of research reported. 12 (5) (Oct 87), inside front cover.

IRRN — growing and changing. 12(5) (Oct 87), inside front cover

New IRRI publications. 12 (2) (Apr 87), back cover.

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Newsletter published for CRIN, 12 (5) (Oct 87), 39.

Oryza, a quarterly rice research journal. 12 (2) (Apr 87), back cover.

Rice IPM Newsletter. 12 (2) (Apr 87), back cover.

Spanish translation released. 12 (2) (Apr 87), 51.

The wetlands and rice in subsaharan Africa. 12 (5) (Oct 87), 39.

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- Addy, S.K., A. Singh, R. Singh, and C.P. Awasthi. Effect of pyrite and fertilizer on rice protein quality. 12 (3) (Jun 87), 44-45.
- Dubey, S.K., R.C. Mondal, and A. Swarup. Effect of gypsum and pyrite with different moisture regimes on sodic soil improvement and rice yield. 12 (6) (Dec 87), 35.
- Singh, R.R., R.P.S. Chauhan, and M.V. Singh. Effect of fineness and time of pyrites application on rice yield and alkali soil properties. 12 (5) (Oct 87), 34-35.

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Jayasena, K.W., and H. Hibino. Occurrence of rice ragged stunt virus (RSV) in Sri Lanka. 12 (1) (Feb 87), 18.

Manigbas, N.L., D. Hille Ris Lambers, G.Z. Salamat, Jr., and H. Hibino. Tolerance of Sitopas crosses for ragged stunt virus (RSV). 12 (1) (Feb 87), 7.

Parejarearn, A., and H. Hibino. Purification and serology of ragged stunt virus (RSV). 12 (3) (Jun 87), 25.

Parejarearn, A., and H. Hibino. Ragged stunt virus (RSV) concentration in tolerant rice. 12 (4) (Aug 87), 14.

Parejarearn, A., and H. Hibino. Symptoms and yield reduction in tolerant varieties infected with ragged stunt virus (RSV). 12 (4) (Aug 87), 14-15.

Salamat, Jr., G.Z., A. Parejarearn, and H. Hibino. Weed hosts of ragged stunt virus (RSV), 12 (4) (Aug 87), 30.

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Jones, M.P. Main and ratoon rice crop performance in mangrove swamps. 12 (2) (Apr 87), 11.

Maurya, D.M., D.N. Vishwakarma, and S.P.S. Rathi. Whole-plant ratooning technique. 12 (3) (Jun 87), 47-48.

Prakash, K.S., and B.G. Prakash. Effect of nitrogen source and insect control on growth of a ration crop. 12 (3) (Jun 87), 41-42.

Singh, B.N., S.P. Sahu, S.S. Pandey, and J.S. Chauhan. Possibility of a ration crop from photoperiod-insensitive summer rices in calcareous sodic soils of North Bihar, India. 12 (6) (Dec 87), 8-9.

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- Gupta, S., S. Das, B. Patra, and S.K.B. Roy. Variability in bud number, bud length, and ratoon tillering in four rice varieties. 12 (5) (Oct 87), 9-10.
- Qiu, Baiqin, and Jin Qingsheng. Ratooning ability of IR varieties in Hangzhou, China. 12 (3) (Jun 87), 7.
- Shivakumaraswamy, P.H., and M. Mahadevappa. Ratooning ability of 20 F₃ rice crosses. 12 (2) (Apr 87), 9-10.

RICE AND FISH CULTURE

- Biswas, C.R., G.N. Chattopadhyay, P.K. Chakraborty, A.K. Bandyopadhyay, and A. Ghosh. Rice-based fish and vegetable cropping system in coastal saline soils. 12 (3) (Jun 87), 53-54.
- Manjappa, K., S.J. Patil, M. Rajashekar, and K.V. Devraj. Rice - fish cultivation in the hilly region of Karnataka, India. 12 (4) (Aug 87), 63-64.

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- Karim, N.H., M.A. Nahar, A.K.M. Shahjahan, D.G. Kanter, M.Z. Haque, and S.A. Miah. Regeneration of anther-derived callus. 12 (2) (Apr 87), 26.
- Mercy, S.T., and F.J. Zapata. Influence of position of rice anthers at plating on callusing and plant regeneration. 12 (4) (Aug 87), 23.
- Shen, Fu-Chen, Chen Wen-Qinag, and Pan Jian-Hui. Cross compatibility between Guizhou traditional upland sinica varieties and short-statured indica varieties. 12 (3) (Jun 87), 8.
- Sree Rangasamy, S.R., T.B. Ranganathan, and G. Manimekalai Gurunathan. Variability in quantitative traits of anther culture-derived progenies. 12 (1) (Feb 87), 15-16.
- Wang, Man Si, and F.J. Zapata. Somatic embryogenesis in rice Oryza sativa cultivar IR40. 12 (4) (Aug 87), 23-24.
- Wang, Man Si, and F.J. Zapata. Somatic embryogenesis in wild rice Oryza perennis Moench. 12 (4) (Aug 87), 24-25.

RICE BUGS

- Rajendran, R., and S. Chelliah. Effect of 8 insecticides on rice bug eggs. 12 (4) (Aug 87), 42.
- Shepard, B.M., and V.A. Perez. Influence of cultivation on survival of the Malayan black bug in ricefields. 12 (3) (Jun 87), 35.
- Singh, M.P., and N.I. Singh. First recorded incidence of rice bugs in Manipur, India. 12 (2) (Apr 87), 31.

- Suharto, H., and I.P. Noch. Effect of transplanting date on leaffolder (LF) Cnaphalocrocis medinalis and rice bug (RB) Leptocorisa oratorius infestation at Kuningan, West Java. 12 (5) (Oct 87), 27.
- Taylo, L.D., J.A. Litsinger, and E.P. Cadapan. Plant host range of the rice bug (RB), 12 (2) (Apr 87), 36.

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- Fagade, S.O., P.G. Pillai, and J.K. Kehinde. IRAT170. a high-yielding, medium-duration upland rice for Nigeria. 12 (2) (Apr 87), 5.
- Fagade, S.O., P.G. Pillai, and J.K. Kehinde. Two upland rice varieties recommended for release in Nigeria. 12 (2) (Apr 87), 8.
- George, T.U., P.J. Tomy, and R.G. Pinhero. Vyttila 3, a new rice variety for acid saline areas. 12(4) (Aug 87), 20.
- Kalaimani, S., O. Ramanathapillai, S. Palanisamy, G. Radhakumar, and A. Idhyarajan. TPS1, a short-duration red rice in Tamil Nadu. 12 (1) (Feb 87), 3-4.
- Kalaimani, S., O.R. Pillai, W.W. Manuel, and M. Subramanian. TPS2 — a new variety for Kanyakumari. 12 (4) (Aug 87), 5.
- Kanyeka, Z.L., P.J. Hyong, and J.M.N. Kibanda. DAK83
 a promising new aromatic selection for small holders in Tanzania. 12 (5) (Oct 87), 7.
- Kulkarni, N., P.P. Reddy, D.V. Rao, and G.B. Rao. Pothana a gall midge (GM) resistant variety for endemic areas of Andhra Pradesh. 12 (3) (Jun 87), 16.
- Marimuthu, R., V. Sivasubramanian, and S. Chelliah. A promising rice culture for shallow waterlogged conditions. 12 (2) (Apr 87), 22.
- Mehta, K.K. Performance of coarse and fine rice varieties on alkali soils. 12 (4) (Aug 87), 19.
- Nathaniels, N.Q.R., P. Druba, G.B. Chettri, and A.R. Samiano. Comparison of IR36 and local varieties of rice in farmers' fields in Bhutan. 12 (5) (Oct 87), 6-7.
- Nathaniels, N.Q.R., P. Druba, G.B. Chettri, and A.R. Samiano. Performance of improved rice varieties in farmers' fields in Bhutan. 12 (5) (Oct 87), 4-5.
- Nayagam, P.G., S. Natarajan, and G.S. Pandian. Agronomic yield characteristics of three elite upland rices in Tamil Nadu. 12 (6) (Dec 87), 7.
- Nguyen, Van Luat, Bui Ba Bong, and Pham Cong Voc. IR 18348-36-3-3, a promising rice for irrigated and slight acid sulfate soil in Vietnam. 12 (4) (Aug 87), 6-7.
- Nguyen, Xuan Hien, and Nguyen Thu Ha. Two promising scented rice varieties for the Mekong Delta. 12 (4) (Aug 87), 9-10.

- Palanisamy, G.A., K. Natarajamoorthy, and S. Palanisamy. Performance of CR666 rice cultures. 12 (3) (Jun 87), 7.
- Palanisamy, S., G.A. Palanisamy, K. Natarajamoorthy, and R. Velusamy. TNAU80030—a promising medium-duration rice for Tamil Nadu. 12 (4) (Aug 87), 6.
- Pillai, P.G., and J.K. Kehinde. Performance of IRAT varieties at Ibadan, Nigeria. 12 (6) (Dec 87), 4.
- Rangel, P.H.N., E.P. Guimaraes, and V. dos A. Cutrim. Metica 1 released in Brazil. 12 (4) (Aug 87), 7.
- Reddy, G.V., K.J. Reddy, V.D. Naidu, M. Gopinath, and M.R.K. Reddy. Two high-yielding varieties for southern Andhra Pradesh wet season. 12 (2) (Apr 87), 8-9
- Satpathy, D., U.N. Dikshit, B. Misra, and D. Parida. A high-yielding early-maturing variety for the rainfed uplands of Orissa. 12 (1) (Feb 87), 3.
- Sharma, S.K., S.V. Subbaiah, and K.K. Murthy. Rice varieties for delayed planting. 12 (6) (Dec 87), 7.
- Siddiq, E.A., V.P. Singh, F.U. Zaman, A.R. Sadananda, and R.P. Puri. Two medium to early-maturing rice varieties for northwest India. 12 (5) (Oct 87), 4.
- Singh, B.K., and R.K. Roy. Varieties suitable for direct seeding in the Ganges floodplain. 12 (3) (Jun 87), 8-9.
- Singh, B.N., and S.P. Sahu. Elite lines for rainfed lowlands in North Bihar, India. 12 (6) (Dec 87), 6.
- Sinha, P.K., K. Prasad, V.S. Chauhan, and J.S. Chauhan. CR314-5-10: a promising culture for shallow rainfed lands of the Chhotanagpur plateau region of Bihar. 12 (5) (Oct 87), 7-8.
- Sthapit, B.R. Chhomro a promising cold-tolerant traditional rice variety for rainfed wetlands in western hills in Nepal. 12 (4) (Aug 87), 20-21.
- Subramanian, M., V. Sivasubramanian, and G.S. Khush. Performance of medium-duration IRRI lines at Tamil Nadu. 12 (1) (Feb 87), 8-9.

RICE VARIETIES — CLASSIFICATION

Glaszmann, J.C. A simplified method to classify rice varieties with isozymes. 12 (3) (Jun 87), 5-7.

RICE VARIETIES, NEW

- Desai, N.D., S. Raman, M.U. Kukadia, and M.R. Patel. High-yielding aromatic rice variety GR101.12(4) (Aug 87), 10-11.
- Fagade, S.O. Development of a rice composite for Nigeria. 12 (2) (Apr 87), 5-6.
- Fagade, S.O., P.G. Pillai, and J.K. Kehinde. Six upland rice varieties released in Nigeria. 12 (6) (Dec 87), 5.
- Fagade, S.O., P.G. Pillai, and J.K. Kehinde. Two upland rice varieties recommended for release in Nigeria. 12 (2) (Apr 87), 8.
- George, T.U., P.J. Tomy, and R.G. Pinhero. Vyttila 3, a new rice variety for acid saline areas. 12(4) (Aug 87), 20.
- Guimaraes, E.P., and O.P. de Morais. Upland rice varieties released in Brazil. 12 (5) (Oct 87), 4.

- Kalaimani, S., O.R. Pillai, W.W. Manuel, and M. Subramanian. TPS2 a new variety for Kanyakumari. 12 (4) (Aug 87), 5.
- Kanyeka, Z.L., P.J. Hyong, and J.M.N. Kibanda. DAK83 a promising new aromatic selection for small holders in Tanzania. 12 (5) (Oct 87), 7.
- Mallik, S., S. Biswas, N.K. Mitra, and B.K. Mandal. NC493, a promising variety for rainfed deepwater areas. 12 (6) (Dec 87), 17.
- Maskina, M.S., Yadvinder-Singh, and Bijay-Singh. Response of new rice varieties to N. 12 (4) (Aug 87), 8-9.
- Narasingarao, Ch., and K.S. Murty. Swarnaprabha, a physiologically efficient variety. 12 (2) (Apr 87), 7-8.
- Panda, S.K., N. Shi, and K.C. Mohapatra. Performance of ORS26-2014-4 (Lalat), a medium-duration variety. 12 (3) (Jun 87), 11.
- Pandey, M.P., S.C. Mani, H. Singh, J.P. Singh, S. Singh, and D. Singh. Pant Dhan 6, a new variety for the hills of Uttar Pradesh. 12 (2) (Apr 87), 7.
- Ramanathapillai, O., S. Kataimani, G. Radhakumar, A. Idhayarajan, M. Subramanian, and A. Sindhamathar. TPS2: a new high-yielding rice variety. 12 (6) (Dec 87), 4.
- Rangasamy, S.R.S., G.A. Palanisamy, K. Natarajamoorthy, S. Palanisami, R. Velusamy, and S.M. Lal. IR64 compared with recently released ASD16 and other IR varieties. 12 (3) (Jun 87), 5.
- Sahu, R.K. Rice variety resistant to gall midge (GM) and bacterial blight (BB) released in Madhya Pradesh (MP), India. 12 (1) (Feb 87), 4.
- Singh, A.J. Paicos 1, a promising new rice for Manipur. 12 (2) (Apr 87), 6.
- Singh, B.N., S.P. Sahu, and R. Thakur. Sudha, a new deepwater rice variety in Bihar, India. 12 (6) (Dec 87), 16-17.
- Sivasubramanian, V., N. Nadarajan, M. Subramanian, and S. Chelliah. IR21820-154-3-2-2-3, a new medium-duration rice variety released in Tamil Nadu as ADT38. 12 (5) (Oct 87), 5-6.
- Soundararaj, A.P.M.K., V. Sivasubramanian, and S. Chelliah. ADT37 released for Tamil Nadu. 12 (6) (Dec 87), 6.
- Subramanian, M., A.P.M.K. Soundararajan, and V. Sivasubramanian. Performance of broadcast seeded TM8089. 12 (3) (Jun 87), 8.
- Ullah, M.M., and N.A. Khondaker. Four new rice varieties in Bangladesh. 12 (3) (Jun 87), 12.
- Uppal, S. K., and G.S. Sidhu. Grain quality of new varieties PR 108 and PR 109 in Punjab, India. 12 (2) (Apr 87), 13.
- Xie, Fangming. Performance of three new hybrid rices. 12 (3) (Jun 87), 23.

RICE WHORL MAGGOT

Barrion, A.T., and J.A. Litsinger. Ochthera sauteri Cresson (Diptera: Ephydridae), predator of rice whorl maggot (RWM) flies. 12 (1) (Feb 87), 19.

- Barrion, A.T., and J.A. Litsinger. Rice whorl maggot (RWM) damage produces unfilled grains. 12 (2) (Apr 87), 33-34.
- Pantua, P.C., and J.A. Litsinger. Ovicidal activity of eight insecticides against the rice whorl maggot (RWM) Hydrellia philippina Ferino. 12 (1) (Feb 87), 21.
- Patnaik, H.P., N.C. Patnaik, and K.M. Samal. Resistance to rice whorl maggot (RWM) and leaffolder (LF) in the north-central plateau of Orissa, India. 12 (2) (Apr 87), 20.
- Velusamy, M., and M. Subramanian. Control of rice pests with phosphamidon 85% WP, 12 (3) (Jun 87), 29.
- Velusamy, M., D. Alice, and M. Subramanian. Screening rice cultivars against rice whorl maggot (RWM). 12 (3) (Jun 87), 17.

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- Routaray, B.N., and S.N. Das. Effect of seedling root dip and main field treatment on *Hirschmanniella mucro*nata and rice yield. 12 (5) (Oct 87), 31.
- Zia, M.S., M. Aslam, and M.T. Rashid. Potassium nutrition of rice. 12 (5) (Oct 87), 36.

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Om, H., R.K. Joon, and O.P. Singh. Damaged seedling roots and grain yield. 12 (4) (Aug 87), 59.

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- Meerigama, I., B.V.R. Punyawardena, and L.G.G. Yapa. Effect of soil bulk density and soil texture on root growth. 12 (6) (Dec 87), 36-37.
- Singh, R., G.C. Aggarwal, and N.T. Singh. Effect of soil moisture regime and straw incorporation on root growth and yield of rice. 12 (2) (Apr 87), 45-46.

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- Bandyopadhyay, A.K. Varieties tolerant of coastal acid saline soils. 12 (2) (Apr 87), 21.
- Biswas, C.R., B. Bhattacharya, B.K. Bandyopadhyay, and A.K. Bandyopadhyay. N, P, and K uptake of rice on coastal saline soils. 12 (2) (Apr 87), 42.
- Biswas, C.R., G.N. Chattopadhyay, P.K. Chakraborty, A.K. Bandyopadhyay, and A. Ghosh. Rice-based fish and vegetable cropping system in coastal saline soils. 12 (3) (Jun 87), 53-54.

- Biswas, C.R., and B. Bhattacharya. Water management for rice in coastal saline soils. 12 (2) (Apr 87), 38.
- Krishnamurthy, R., M. Anbazhagan, and K.A. Bhagwat. Tiller growth as an index of salinity resistance. 12 (5) (Oct 87), 14-15.
- Mathur, S.K., O.P. Mathur, and N.R. Talati. Effect of soil amendments on rice and wheat yields in salt-affected soils. 12 (4) (Aug 87), 63.
- Niane, A.B. Response of rice to N split application on a saline soil. 12 (1) (Feb 87), 27.
- Sajjad, M.S., M.L.K. Niazi, Z. Aslam, and M.A. Awan. Salt tolerance in rice Oryza sativa L. 12 (5) (Oct 87), 15.
- Senadhira, D., and S.S. Virmani. Survival of some F₁ rice hybrids and their parents in saline soil. 12 (1) (Feb 87), 14-15.

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SEED PRODUCTION

- Glaszmann, J.C., O. Edralin, and S.S. Virmani. Isozyme markers to monitor seed purity in indica hybrid rice. 12 (5) (Oct 87), 17.
- Halepyati, A.S., M.N. Sheelavantar, and L.A. Dixit. Breaking dormancy in Sesbania rostrata. 12 (5) (Oct 87), 36.
- Sharma, H.L., H. Singh, H.S. Randhawa, D.P. Joshi, and M.R. Gagneja. Sequential tiller separation a method for rapid rice seed multiplication. 12 (6) (Dec 87), 9.

SEED TREATMENT

- Gopalaswamy, G., and P. Vidhyasekaran. Effect of method of applying Azospirillum brasilense on rice yield. 12 (4) (Aug 87), 56-57.
- Macatula, R.F., R.P. Basilio, and O. Mochida. Seed treatment with calcium peroxide to control green leafhopper (GLH) and brown planthopper (BPH). 12 (2) (Apr 87), 33.
- Purushothaman, D., G. Gunasekaran, and G. Oblisami. Response of rice to Azospirillum inoculation. 12 (1) (Feb 87), 30.
- Sudjak S., M. Seed treatment against tungro (RTV). 12 (5) (Oct 87), 18.
- Zeigler, R.S., M. Rubiano, and E. Alvarez. Heat and chemical therapy to eradicate *Pseudomonas fusco-vaginae* from rice seed. 12 (5) (Oct 87), 18-19.

SEMIDWARF RICE

Palanisamy, S., G.A. Palanisamy, K. Natarajamoorthy, and R. Velusamy. TNAU80030—a promising medium-duration rice for Tamil Nadu. 12 (4) (Aug 87), 6.

- Pandey, M.P., S.C. Mani, H. Singh, J.P. Singh, S. Singh, and D. Singh. Pant Dhan 6, a new variety for the hills of Uttar Pradesh. 12 (2) (Apr 87), 7.
- Ramanathapillai, O., S. Kalaimani, G. Radhakumar, A. Idhayarajan, M. Subramanian, and A. Sindhamathar. TPS2: a new high-yielding rice variety. 12 (6) (Dec 87), 4.
- Reddy, G.V., K.J. Reddy, V.D. Naidu, M. Gopinath, and M.R.K. Reddy. Two high-yielding varieties for southern Andhra Pradesh wet season. 12 (2) (Apr 87), 8-9.
- Sahu, R.K. Rice variety resistant to gall midge (GM) and bacterial blight (BB) released in Madhya Pradesh (MP), India. 12 (1) (Feb 87), 4.
- Sajjad, M.S., and M.A. Awan. Induction of productive semidwarf mutants of Basmati rice. 12 (6) (Dec 87), 20-21.
- Singh, A.J. Paicos 1, a promising new rice for Manipur. 12 (2) (Apr 87), 6.

SHEATH BLIGHT CONTROL

Mithrasena, Y.J.P.K., D.L. Wickramasinghe, and W.P. Adikari. Fungicidal control of rice sheath blight (ShB). 12 (4) (Aug 87), 26-27.

SHEATH BLIGHT PATHOGEN

- Shahjahan, A.K.M., N. Fabellar, and T.W. Mew. Nitrogen level, cultivar, and R. solani isolate effect on sheath blight (ShB) development. 12 (3) (Jun 87), 27-28.
- Shahjahan, A.K.M., N. Fabellar, and T.W. Mew. Relationship between growth rate, sclerotia production, and virulence of isolates of *Rhizoctonia solani* Kuhn. 12 (3) (Jun 87), 28-29.
- Yin, Shangzhi, and T.W. Mew. Effect of sclerotia size of Rhizoctonia solani on infectivity on rice plants. 12 (6) (Dec 87), 21.
- Yin, Shangzhi, and T.W. Mew. Inoculum distribution patterns of rice sheath blight (ShB). 12 (5) (Oct 87), 21.
- Yin, Shangzhi, and T.W. Mew. Sheath blight diseases in tropical ricefields. 12 (5) (Oct 87), 19-20.

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- Ahuja, S.C., and U. Bhan. Sheath blotch (SBL) of rice. 12 (4) (Aug 87), 31-32.
- Kang, M.S., and I. Singh. Some pathological and physiological diseases of rice in Punjab. 12 (6) (Dec 87), 24.

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- Lewin, H.D., and P. Vidhyasekaran. Controlling sheath rot (ShR) in rice. 12 (1) (Feb 87), 17.
- Lewin, H.D., and P. Vidhyasekaran. Sources of resistance to sheath rot (ShR). 12 (1) (Feb 87), 7.
- Saroja, R., M. Suriachandraselvan, J. Venkatakrishnan, K. Nilakantapillai, and T.B. Ranganathan. Field evaluation of rice culture resistance to leaffolder (LF) and sheath rot (ShR). 12 (2) (Apr 87), 18.

- Vidhyasekaran, P., and H.D. Lewin. Time of spraying to control sheath rot (ShR). 12 (6) (Dec 87), 21-22.
- Zeigler, R.S., M. Rubiano, and E. Alvarez. Heat and chemical therapy to eradicate *Pseudomonas fuscovaginae* from rice seed. 12 (5) (Oct 87), 18-19.

SNAILS

- Mochida, O. Pomacea snails in the Philippines. 12 (4) (Aug 87), 48-49.
- Saxena, R.C., A.V. de Lara, and H.D. Justo, Jr. Golden apple snail: a pest of rice. 12 (1) (Feb 87), 24-25.

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- Dubey, S.K., R.C. Mondal, and A. Swarup. Effect of gypsum and pyrite with different moisture regimes on sodic soil improvement and rice yield. 12 (6) (Dec 87), 35.
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- Rao, D.L.N., and S.K. Ghai. Slow-release urea fertilizers in sodic soils. 12 (1) (Feb 87), 32-33.
- Singh, K.N., and D.K. Sharma. Response to nitrogen of rice in sodic soil. 12 (3) (Jun 87), 45.
- Swarup, A. Effect of sodicity and pretransplanting submergence on rice yield. 12 (3) (Jun 87), 46.

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- Dubey, S.K., R.C. Mondal, and A. Swarup. Effect of gypsum and pyrite with different moisture regimes on sodic soil improvement and rice yield. 12 (6) (Dec 87), 35.
- Mathur, S.K., O.P. Mathur, and N.R. Talati. Effect of soil amendments on rice and wheat yields in salt-affected soils. 12 (4) (Aug 87), 63.
- Singh, R.R., R.P.S. Chauhan, and M.V. Singh. Effect of fineness and time of pyrites application on rice yield and alkali soil properties. 12 (5) (Oct 87), 34-35.
- Yamauchi, M., and M.D. Winslow. Silica reduces disease on upland rice in a high rainfall area. 12(6) (Dec 87), 22-23.

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- Haque, M.Z., and M.S. Islam. Seedling emergence in upland rice. 12 (2) (Apr 87), 41.
- Ilangovan, M., R. Kulandaivelu, and R.M. Panchanathan. Soil- and climate-based irrigation schedules for rice. 12 (2) (Apr 87), 38.

- Khade, V.N., B.P. Patil, S.T. Thorat, and S.A. Khanvilkar. Irrigation regime and rice yield, 12 (3) (Jun 87), 40.
- Marimuthu, R., and R. Kulandaivelu. Irrigation management for lowland rice under water constraint. 12 (1) (Feb 87), 26.
- Mohandass, R., R. Radhakrishnan, and R.K. Sivanappan. Influence of moisture regime on IR50. 12 (2) (Apr 87), 46.
- Saleh, A.F.M. The effect of supplementary irrigation on rice yield in Bangladesh. 12 (1) (Feb 87), 25-26.
- Singh, R., G.C. Aggarwal, and N.T. Singh. Effect of soil moisture regime and straw incorporation on root growth and yield of rice. 12 (2) (Apr 87), 45-46.
- Swarup, A. Effect of sodicity and pretransplanting submergence on rice yield. 12 (3) (Jun 87), 46.

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- Singh, M.V. Effect of zinc and phosphorus on rice wheat yields in semireclaimed alkali soil. 12 (2) (Apr 87), 48.
- Singh, M.V. Responses of rice to N, P, and Zn in semireclaimed alkali soil. 12 (3) (Jun 87), 49.

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STEM BORERS

- Barrion, A.T., and J.A. Litsinger. Stem borers (SB) in dryland and wetland rice. 12 (4) (Aug 87), 17.
- Macatula, R.F., and O. Mochida. Minimum levels of three commonly used insecticides to control five insect pests of rice in the Philippines. 12 (4) (Aug 87), 39.
- Roychoudhury, N., B. Mukhopadhyay, and S. Chakravorty. Juvenoid-induced shortening of overwintering in stem borer (SB) Sesamia inferens. 12 (2) (Apr 87), 32.
- Ukwungwu, M.N. Seasonal changes in the stem borer (SB) Maliarpha separatella populations. 12 (3) (Jun 87), 34-35.

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- Maskina, M.S., Yadvinder-Singh, and Bijay-Singh. Wheat straw management for rice on a coarse-textured soil. 12 (2) (Apr 87), 40.
- Singh, R., G.C. Aggarwal, and N.T. Singh. Effect of soil moisture regime and straw incorporation on root growth and yield of rice. 12 (2) (Apr 87), 45-46.

STRIGA

Zuberi, M.I., A. Ahmad, M.A.R. Biswas, G.P. Ghosh, A.N.M.A. Choudhury, and P.C. Roy. Striga densiflora Benth., an angiospermic root parasite of rice in Bangladesh. 12 (6) (Dec 87), 32-33.

SURVEY OF PESTS

- Delpachitra, N.D., and D.L. Wickramasinghe. Pest survey in Kalutara district, Sri Lanka. 12 (3) (Jun 87), 31.
- Ghose, S., H.R. Prabhudesai, A. Dias, S.P. Sundarajan, and P.K. Mirajgaonkar. Rice insects and diseases in Goa, India. 12 (2) (Apr 87), 35.

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TECHNIQUES, PROCEDURES, TESTS

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- Maurya, D.M., D.N. Vishwakarma, and S.P.S. Rathi. Whole-plant ratooning technique. 12 (3) (Jun 87), 47-48.
- Medrano, F.G., E.A. Heinrichs, S. Alam, M.S. Alam, Y.Y. Jackson, D. Senadhira, and N. Wickramasinghe. Modified seedbox screening test to identify field resistance to brown planthopper (BPH). 12(3) (Jun 87), 17-18.
- Parejarearn, A., and H. Hibino. Purification and serology of ragged stunt virus (RSV). 12 (3) (Jun 87), 25.
- Raina, S.K., and S. Hadi. A simple device for mass extraction of rice anthers. 12 (3) (Jun 87), 23-24.
- Sasidhar, V.K., M.A. Salam, and V.R. Nair. Performance of rice varieties on floating rafts. 12 (4) (Aug 87), 49-50.
- Sharma, H.L., H. Singh, H.S. Randhawa, D.P. Joshi, and M.R. Gagneja. Sequential tiller separation a method for rapid rice seed multiplication. 12 (6) (Dec 87), 9.
- Singh, T.S. Detection of seedborne rice fungi by blotter method. 12 (4) (Aug 87), 27-28.

THRIPS

Chatterjee, P.B. Rice thrips infestations in West Bengal. 12 (4) (Aug 87), 41-42.

- Delpachitra, N.D., and D.L. Wickramasinghe. Rice thrips Stenchaetothrips biformis (Bagnall) effect on yield. 12 (3) (Jun 87), 32.
- Logiswaran, G., V. Kr. Sathiyandam, K. Ramaraju, and P.C. Sundara Babu. Reaction of rice culture seedlings to thrips. 12 (2) (Apr 87), 19.
- Medina, E.B., and R.C. Saxena. Nira variety a susceptible host for mass rearing rice thrips Stenchaeto-thrips biformis (Bagnall). 12 (6) (Dec 87), 27.
- Medina, E.B., and R.C. Saxena. Preference, oviposition response, and population growth of Stenchaetothrips biformis (Bagnall) on selected rice varieties. 12 (6) (Dec 87), 28.
- Murugesan, S., M.S. Venugopal, and M. Bharathi. Thrips control at tillering of transplanted rice. 12 (5) (Oct 87), 25.
- Reddy, K.L., C. Srinivas, T.G.N. Rao, and P.S. Rao. Rice thrips, a new rice pest in Northern Telangana, India. 12 (5) (Oct 87), 28-29.
- Subramanian, M., and M. Velusamy. Reaction of rice varieties to thrips. 12 (2) (Apr 87), 18.
- Velusamy, R., K. Natarajamoorthy, G.A. Palanisamy, and S. Palanisamy. Resistance to thrips of traditional rice cultivars. 12 (2) (Apr 87), 19.
- Velusamy, R., and K. Natarajamoorthy. Sources of resistance to rice thrips. 12 (6) (Dec 87), 13.

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- Fajardo, F.F., and K. Moody. Effect of land preparation on control of *Paspalum distichum*. 12 (4) (Aug 87), 50.
- Ganjir, B.L., and R.P. Rajput. Effect of cultivation method on the rice crop and the mechanical impediment of Vertisols. 12 (4) (Aug 87), 55.
- Inayatullah, C., A. Rahman, A. Majid, and L. Khan. Influence of zero-tillage on rice stem borer (SB) larval diapause in a rice wheat cropping pattern. 12 (2) (Apr 87), 49-50.

TISSUE CULTURE

- Kumari, D.S., N.P. Sarma, and G.J.N. Rao. Tissue culture propagation of cytosterile stocks. 12(2)(Apr 87), 24-25.
- Ling, D.H. Multiple reciprocal translocation from somatic cell culture in IR54. 12 (2) (Apr 87), 26-27.
- Ling, D.H., Z.R. Ma, W.Y. Chen, and M.F. Chen. Phenotypic patterns in somaclones from plants regenerated from somatic cell culture of IR lines. 12 (2) (Apr 87), 25.
- Mercy, S.T., and F.J. Zapata. Influence of position of rice anthers at plating on callusing and plant regeneration. 12 (4) (Aug 87), 23.
- Sarma, B.K., and P.C. Deka. Induction of callus from leaf explants of Azolla pinnata. 12 (4) (Aug 87), 57-58.
- Wang, Man Si, and F.J. Zapata. Somatic embryogenesis in rice Oryza sativa cultivar IR40. 12 (4) (Aug 87), 23-24.
- Wang, Man Si, and F.J. Zapata. Somatic embryogenesis in wild rice Oryza perennis Moench. 12 (4) (Aug 87), 24-25.

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Hassan, M.A., V.R. Ramachandran, and J.U. Nair. Evapotranspiration rates of Jaya and Triveni varieties. 12 (3) (Jun 87), 9.

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- Aganon, C.P. Rice hulls as organic fertilizer on transplanted rice. 12 (2) (Apr 87), 40.
- Bisht, P.S., P.C. Pandey, and P. Lal. Agronomic and economic evaluation of herbicides in transplanted rice. 12 (2) (Apr 87), 36-37.
- Murugesan, S., M.S. Venugopal, and M. Bharathi. Thrips control at tillering of transplanted rice. 12 (5) (Oct 87), 25.
- Pablico, P.P., and K. Moody. A survey of weeds in transplanted and wet-seeded rice under rainfed and irrigated conditions. 12 (1) (Feb 87), 23.
- Panigrahi, U.C., and S.K. Sahu. Response of transplanted rice to micronutrients and the residual effect on wheat. 12 (5) (Oct 87), 38.
- Shrivastava, Jr., S.K., R. Singh, B.R. Chandrawanshi, and H.P. Agrawal. Nitrogen management for increasing N efficiency in transplanted rice. 12 (4) (Aug 87), 51.
- Tomar, S.S. Effect of modified urea materials and N levels on transplanted rice. 12 (4) (Aug 87), 50-51.
- Tomar, S.S. Herbicides to control weeds in transplanted rice. 12 (3) (Jun 87), 38-39.

TUNGRO CONTROL

- Aiyanathan, K.E.A., and P. Narayanasamy. Effect of neem oil on tungro (RTV) infection in susceptible and resistant varieties. 12 (6) (Dec 87), 23-24.
- Cabunagan, R.C., Z.M. Flores, H. Hibino, F. Elazegui, and T.W. Mew. Timing of planting and variety for rice tungro virus disease (RTV) control. 12 (3) (Jun 87), 25-26.
- Kareem, A.A., R.C. Saxena, and H.D. Justo, Jr. Cost comparison of neem oil and an insecticide against rice tungro virus (RTV). 12 (4) (Aug 87), 28-29.
- Macatula, R.F., O. Mochida, and J.A. Litsinger. Effect of three insecticides on green leafhopper (GLH) population and tungro (RTV) incidence. 12 (5) (Oct 87), 24.
- Mas'ud, S., and Moeh. Sudjak S. Effect of buprofezin in controlling green leafhopper (GLH) and tungro (RTV) incidence. 12 (3) (Jun 87), 36-37.
- Rao, P.S.P., G. Bhaktavatsalam, and A. Anjaneyulu. Control of tungro (RTV) and yellow stem borer (YSB) in rice by synthetic pyrethroids. 12 (4) (Aug 87), 41.
- Saxena, R.C., and H.D. Justo, Jr. Trap crop for green leafhopper (GLH) and tungro (RTV) management. 12 (3) (Jun 87), 31-32.
- Sudjak S., M. Seed treatment against tungro (RTV). 12 (5) (Oct 87), 18.
- Valencia, S.L., and O. Mochida. Effect of synthetic pyrethroid insecticides on green leafhopper (GLH) and tungro (RTV). 12 (3) (Jun 87), 37-38.

Valencia, S.L., and O. Mochida. Frequency and timing of insecticide application to control rice tungro virus (RTV). 12 (4) (Aug 87), 30-31.

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- Alviola, A.L., III, and J.A. Litsinger. Leafhopper and planthopper populations and rice tungro virus (RTV) incidence at the tail end of an irrigation system. 12 (1) (Feb 87), 22.
- Baltazar, R.B., and N.G. Tangonan. Disease occurrence as affected by age of transplanted seedlings. 12 (5) (Oct 87), 21.
- Dahal, G., and H. Hibino. Relationship between tungro transmission by individual Nephotettix virescens, mode of feeding, and life span, 12 (4) (Aug 87), 33-34.
- Jayasena, K.W. Association of two types of viruses with stunted, yellow rice plants in southern Sri Lanka. 12 (5) (Oct 87), 22.
- Rao, G.N., and P. Narayanasamy. Effect of plant age at inoculation on rice tungro virus development. 12 (5) (Oct 87), 20.

TUNGRO — VARIETAL RESISTANCE

- Daquioag, R.D., P.O. Cabauatan, and H. Hibino. Balimau Putih, cultivar tolerant of rice tungro-associated viruses. 12 (6) (Dec 86), 8. [corrected in 12 (2) (Apr 87), 51]
- Flores, Z.M., R.C. Cabunagan, G.B. Jonson, and H. Hibino. Reaction to rice tungro-associated viruses of rice varieties with different genes for green leaf (GLH) resistance. 12 (5) (Oct 87), 11.
- Mariappan, V., V. Narasimhan, S. Muthusamy, and G.S. Khush. Reaction of IR lines to tungro virus (RTV). 12 (2) (Apr 87), 14-15.
- Narasimhan, V., V. Mariappan, S. Muthusamy, and S. Rajasekaran. Screening for resistance to tungro (RTV). 12 (2) (Apr 87), 16.
- Sudjak S., M., A. Muis, and S. Sama. Field screening against tungro (RTV) in Lanrang, Indonesia. 12 (3) (Jun 87), 14.
- Sudjak S., M., A. Muis, S. Sama, and W. Wakman. Field screening IRRI lines against tungro (RTV) disease in Lanrang. 12 (4) (Aug 87), 13.
- Sunio, L.M., and E.H. Tryon. Reaction of varieties and selections to green leafhopper (GLH) and tungro (RTV) in the greenhouse. 12 (4) (Aug 87), 14.
- Tiongco, E.R., Z.M. Flores, and H. Hibino. Reaction of selected varieties to tungro (RTV) and green leafhopper (GLH). 12 (4) (Aug 87), 15-16.
- Vidhyasekaran, P., K. Saivaraj, H.D. Lewin, and S. Chelliah. Reaction of IR and ADT varieties to green leafhopper (GLH) and tungro (RTV). 12 (5) (Oct 87), 12.



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- Mondal, A.H., and S.A. Miah. Ufra problem in low-lying areas of Bangladesh. 12 (4) (Aug 87), 29-30.
- Rahman, M.L. Source of ufra-resistant deepwater rice. 12 (1) (Feb 87), 8.
- Rathaiah, Y., and G.R. Das. Ufra threatens deepwater rice in Majuli, Assam. 12 (4) (Aug 87), 29.

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- Barrion, A.T., and J.A. Litsinger. Stem borers (SB) in dryland and wetland rice. 12 (4) (Aug 87), 17.
- Desmukh, M.R., K.K. Trivedi, and J.P. Tiwari. Response of upland rice to weed control methods. 12 (4) (Aug 87), 47-48.
- Fagade, S.O., P.G. Pillai, and J.K. Kehinde. Six upland rice varieties released in Nigeria. 12 (6) (Dec 87), 5.
- Faye, A., M. Gningue, and O. Mane. Inheritance of tillering ability in three crosses of upland varieties. 12 (3) (Jun 87), 10-11.
- Ghosh, B.K., and S.K. Sahu. Response of rainfed upland rice to chlormequat chloride. 12 (6) (Dec 87), 15.
- Guimaraes, E.P., and O.P. de Morais. Upland rice varieties released in Brazil. 12 (5) (Oct 87), 4.
- Haque, M.Z., and M.S. Islam. Seedling emergence in upland rice. 12 (2) (Apr 87), 41.
- Hati, N. Effect of combining chemical N and Sesbania aculeata in upland rice. 12 (2) (Apr 87), 44-45.
- Kehinde, J.K., and S.O. Fagade. Response of upland rices to nitrogen. 12 (4) (Aug 87), 60.
- Murali, K.J., and D. Purushothaman. Effect of Azospirillum inoculation on upland rice. 12 (6) (Dec 87), 34.
- Nayagam, P.G., S. Natarajan, and G.S. Pandian. Agronomic yield characteristics of three elite upland rices in Tamil Nadu. 12 (6) (Dec 87), 7.
- Nayagam, P.G., G. Soundrapandian, and S. Natarajan. Evaluation of drought-resistant upland rice accessions. 12 (4) (Aug 87), 18.
- Singh, T.N., G. Singh, H.P. Singh, and G.P. Verma. P and K requirements of upland rice in eastern Uttar Pradesh. 12 (2) (Apr 87), 46-47.
- Yamauchi, M., and M.D. Winslow. Silica reduces disease on upland rice in a high rainfall area. 12 (6) (Dec 87), 22-23.

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- Bisht, P.S., P.C. Pandey, and P. Lal. Agronomic and economic evaluation of herbicides in transplanted rice. 12 (2) (Apr 87), 36-37.
- Chandrasena, J.P.N. Ludwigia species —\most prevalent broad-leafed weeds in wet zone ricefields of Sri Lanka. 12 (6) (Dec 87), 32.
- Desmukh, M.R., K.K. Trivedi, and J.P. Tiwari. Response of upland rice to weed control methods. 12(4) (Aug 87), 47-48.
- Fajardo, F.F., and K. Moody. Effect of land preparation on control of *Paspalum distichum*. 12 (4) (Aug 87), 50.
- Mohamed Ali, A., and K. Ramamoorthy. Control of Eragrostis japonica (Thunb.) Trin. in upland rice. 12 (1) (Feb 87), 23-24.
- Pradhan, P.M., and G.B. Chettri. Evaluation of weed control methods in Bhutan. 12 (5) (Oct 87), 29-30.
- Rao, A.N., and K. Moody. Weeds disseminated with rice seedlings. 12 (5) (Oct 87), 30.
- Tomar, S.S. Herbicides to control weeds in transplanted rice. 12 (3) (Jun 87), 38-39.
- Yasin HG, M. Weed control in hybrid rice. 12 (4) (Aug 87), 48.

WEED DENSITY

- Lubigan, R.T., and K. Moody. Weeds in shifting cultivation in Quezon Province, Philippines. 12 (1) (Feb 87), 24.
- Navarez, D.C., E.M. Castin, and K. Moody. Effect of frequent cultivation on Rottboellia cochinchinensis density. 12 (4) (Aug 87), 45-46.
- Pablico, P.P., and K. Moody. A survey of weeds in transplanted and wet-seeded rice under rainfed and irrigated conditions. 12 (1) (Feb 87), 23.
- Rao, A.N., and K. Moody. Weed species occurring in rice seedling nurseries in Guimba, Nueva Ecija, Philippines. 12 (2) (Apr 87), 37.
- Singh, D., and B. Gangwar. Ricefield weeds in South Andaman, India. 12 (4) (Aug 87), 47.

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- Arvind, A. Host plants for yellow rice borer (YSB) Scirpophaga incertulas and white stem borer (WSB) S. innotata. 12 (3) (Jun 87), 33.
- Salamat, Jr., G.Z., A. Parejarearn, and H. Hibino. Weed hosts of ragged stunt virus (RSV). 12 (4) (Aug 87), 30.
- Velusamy, M., D. Alice, and M. Subramanian. Reaction of rice varieties to the mite Oligonychus oryzae. 12(3) (Jun 87), 15.

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Pablico, P.P., and K. Moody. A survey of weeds in transplanted and wet-seeded rice under rainfed and irrigated conditions. 12 (1) (Feb 87), 23.

WHITEBACKED PLANTHOPPER CONTROL

- Liu, G., and R.M. Wilkins. Antifeedant effect of sublethal levels of carbofuran against whitebacked planthopper (WBPH). 12 (6) (Dec 87), 24-25.
- Singh, J., and S.S. Malhi. Diluted quinalphos and fenthion and control of whitebacked planthopper (WBPH). 12 (4) (Aug 87), 44.

WHITEBACKED PLANTHOPPER INCIDENCE

- Gubbaiah, D. Dasappa, and H.P. Revanna. The rice whitebacked planthopper (WBPH) in Karnataka. 12 (2) (Apr 87), 34.
- Shankar, G., and P. Baskaran. Outbreak of whitebacked planthopper (WBPH) near Annamalainagar, South India. 12 (5) (Oct 87), 26.
- WHITEBACKED PLANTHOPPER VARIETAL RESISTANCE Inayatullah, C., M. Ashraf, and L. Khan. Whitebacked planthopper (WBPH) damage in Pakistan. 12 (2) (Apr 87), 18.
- Rajendran, R., M. Gopalan, and R. Velusamy. Rice varieties resistant to brown planthopper (BPH), white-backed planthopper (WBPH), and leaffolder (LF). 12 (5) (Oct 87), 12-13.
- Shukla, K.K., R.S. Saini, and A.K. Gupta. Reaction of selected rices to whitebacked planthopper (WBPH). 12 (5) (Oct 87), 13-14.
- Sudjak S., M. High resistance to whitebacked planthopper (WBPH) in Indonesia. 12 (5) (Oct 87), 13.
- Tripathi, R.S., and R. Pandya. Resistance to whitebacked planthopper (WBPH) in Rajasthan. 12 (3) (Jun 87), 15-16.
- Velusamy, R., G.A. Palanisamy, and K. Natarajamoorthy. Hill rice resistance to leafhoppers and planthoppers in Tamil Nadu. 12 (2) (Apr 87), 19.
- Velusamy, R., R. Rajendran, P.C. Sundara Babu, and G.S. Khush. Resistance of IR varieties to leafhoppers and planthoppers. 12 (1) (Feb 87), 10.

WHITE LEAF STREAK

Nayak, D.K., H.S. Chakrabarti, and A. Pal. White leaf streak disease on rice in India. 12 (6) (Dec 87), 23.

WHITE STEM BORER

- Arvind, A. Host plants for yellow rice borer (YSB) Scirpophaga incertulas and white stem borer (WSB) S. innotata. 12 (3) (Jun 87), 33.
- Inayatullah, C., A. Rahman, A. Majid, and L. Khan. Influence of zero-tillage on rice stem borer (SB) larval diapause in a rice wheat cropping pattern. 12 (2) (Apr 87), 49-50.

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Kulkarni, N., G.V.S.P. Rao, and T. Narsaiah. New sources of resistance to gall midge (GM) and yellow stem borer (YSB). 12 (3) (Jun 87), 17.

Kulkarni, N., G.V.S.P. Rao, and T. Narsaiah. Screening for resistance to yellow stem borer (YSB). 12 (3) (Jun 87), 17.

Pandya, H.V., A.H. Shah, and M.S. Purohit. Effect of insecticide treatment at different rice crop stages on carryover of yellow stem borer (YSB). 12 (6) (Dec 87), 27.

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Pandya, H.V., A.H. Shah, and M.S. Purohit. Ovicidal activity of insecticides against yellow stem borer (YSB). 12 (6) (Dec 87), 28.

Pandya, H.V., A.H. Shah, and M.S. Purohit. Yield loss caused by leaffolder (LF) damage alone and combined with yellow stem borer (YSB) damage. 12 (5) (Oct 87), 28.

Purohit, M.S., A.H. Shah, and S. Raman. Five granular and 4 sprayable insecticides evaluated for yellow stem borer (YSB) control. 12 (1) (Feb 87), 20.

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